

IN THE UNITED STATES PATENT
AND TRADEMARK OFFICE

Applicants: Richard A. Wilsak et al.)
Serial No.: 10/663,918)
Filed: September 16, 2003)
Title: SOLID-LIQUID)
 SEPARATION)
 PROCESS)
Group Art Unit: 1724)
Examiner: Robert J. Popovics)
Attorney Docket No.: 37,512)
)

LETTER

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Dear Sir:

This paper is being timely presented in response to a July 17, 2007, official action in which the U.S. Patent and Trademark Office characterized the applicants' April 17, 2007, submission as not being fully responsive to the Patent Office's June 15, 2006, official action. The applicants respectfully disagree with the Patent Office's characterization; but, nevertheless, provide the following response to the Patent Office's July 2007 action.

The July 2007 action seeks clarification of the applicants' position that Hensen et al. U.S. Patent No. 5,004,860 does not anticipate pending claims 40-49. The July 2007 action reproduces only a portion of the applicants' position. The complete position is reproduced in the appendix to this paper. The applicants' position is that independent claim 40 is not anticipated by the disclosure of the Hensen patent and, therefore, that claims 41-49 dependent upon claim 40 also are not anticipated by the Hensen patent. Reconsideration and withdrawal of the rejection are respectfully requested.

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Claim 40 recites a solid-liquid separation process that includes directing a slurry feed into a hollow cylinder of a filter column. The filter column contains at least one filter tube axially disposed within the cylinder. Claim 40 does not, however, specify directing the slurry feed into the filter tube; instead, it specifies directing the slurry feed into the hollow cylinder. These claimed features are disclosed in the specification at page 13, lines 3-15, page 15, lines 8-20, and Figures 2a-2d of the application, which describe the introduction of the slurry feed into a closed end 13 of a hollow cylinder 11 of a filter column 10—not into a filter tube 17 axially disposed in the filter column 10. Mother liquor passes through a filter 23 of the filter tube 17 and then exits the filter tube 17 through a bottom portion 21 of the filter tube 17. Directional arrows adjacent element-ID numbers 13 and 21 in Figs. 2a-2d depict the directions in which the slurry and mother liquor flow—the slurry flows into the closed end 13, and mother liquor flows out through the bottom portion 21.

In contrast to claim 40, the Hensen patent discloses (and clearly illustrates in Figure 4) a filtration process utilizing a tank 166 having disposed therein porous metal tubes 164. According to the Hensen patent, a liquid-crystal slurry is directed into the porous metal tubes 164—not into the tank 166. Liquid present in the liquid-crystal slurry passes from the tubes 164 through the tubes' porous holes and into the tank 166—the slurry *does not* pass into the tank 166. The Hensen patent clearly *does not* disclose or otherwise teach the skilled artisan to pass the slurry into the tank 166 in which the tubes 164 are disposed.

The contrast between claim 40 and the Hensen patent's disclosure may be analogized to a relationship where material is passed into the *shell* of a shell-and-tube heat exchanger (akin to pending claim 40) and where material is passed into the *tubes* of a shell-and-tube heat exchanger (akin to the Hensen patent's disclosure). Although tubes may be considered to be present in the shell of a shell-and-tube heat exchanger, the applicants submit that those skilled in the art would appreciate the distinction between passing material into the shell, versus the tubes, of a shell-and-tube heat exchanger.

To the extent the Patent Office believes that clarifying language in claim 40 can be presented to make the foregoing distinction more clear, it is invited to suggest such language and inform the applicants accordingly.

The applicants respectfully submit that its April 2007 submission was fully responsive. In its April 2007 submission, the applicants forwarded a copy of the applicants' October 16, 2006, timely-filed, response to a June 15, 2006, official action. The applicants respectfully submit that its October 2006 response was a bona fide attempt to advance the prosecution of the application, inasmuch as the applicants (a) submitted claim amendments, (b) requested reconsideration of the outstanding rejections, (c) distinctly and specifically pointed out the supposed errors in the June 2006 action, (d) presented arguments pointing out the specific distinctions believed to render the claims patentable over the applied references, and (e) clearly pointed out the patentable novelty of the claims in view of the state of the art disclosed by the references cited and how any claim amendments would avoid such references. See 37 CFR § 1.111.

Should the examiner wish to discuss the foregoing, or any matter of form or procedure in an effort to advance this application to allowance, the examiner is urged to contact the undersigned attorney at the telephone number indicated below.

Respectfully submitted,

BP AMERICA INC.

August 13, 2007

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APPENDIX

Contrary to the action's conclusion, the Hensen patent's disclosure of "slurry filter units," does not anticipate independent claim 40 or any claim dependent therefrom. Independent claim 40 recites "directing a slurry feed into the hollow cylinder." In contrast to that recitation, the Hensen patent clearly discloses a filtration process that passes a liquid-crystal slurry through one or more porous metal tubes 164. Liquid present in the slurry passes from the tubes 164 through the tubes' porous holes and into the tank 166—the slurry *does not* pass into the tank 166. The Hensen patent clearly *does not* disclose or otherwise teach the skilled artisan to pass the slurry into the tank 166 in which the tubes 164 are disposed. The relevant text from the Hensen patent descriptive of the slurry filter units (shown in Figure 4 of the Hensen patent) is as follows:

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as shown to the differential pressure sensors 161, 162, the flow sensor 111, 112, and the valves 121, 122; 131, 132 and 151, 152.

As best shown in FIG. 4, each of the filter units 61, 62 comprises one or more porous metal tubes 164 through 5 which the liquid-crystal slurry is pumped at a selected velocity. The number of tubes 164 is determined by the size of the separation unit 12. A pressure drop across the porous wall of each tube 164 is established by the amount of liquid filtrate withdrawn. The pressure drop 10 causes the liquid to flow through the pores of each porous filter tube 164, laterally outwardly to a tank 166 surrounding the tubes 164 and coupled to output lines 71, 72 via output lines 171, 172 for each filter unit 61 or 62. In time, the pores in the tubes 164 will become 15 clogged with small crystals and the pressure in the tubes 164 will build up. This creates a back pressure in the

The Hensen patent at col. 5, lines 4-13 (describing features shown in Figure 4).

The Hensen patent does not anticipate independent claim 40 (or any claim dependent therefrom) because the Hensen patent does not expressly or impliedly disclose each feature recited in independent claim 40. See *Verdegaal Bros.*, 814 F.2d at 631 ("A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference."). Consequently, the anticipation rejection of pending claims 40-49 is

traversed, and reconsideration and withdrawal of the rejection are respectfully requested.